EVALUATING FINANCIAL RATIOS IN CONSTRUCTION INDUSTRY: A CASE STUDY OF INDONESIAN FIRMS

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ABSTRACT: This paper presents findings of a pilot study, which evaluates financial ratios in the Indonesian construction Industry. The study is an extension of a larger study that is an attempt to identify the areas of strategic issues for Indonesian construction firms and develop an appropriate strategic management process for the firms to formulate, implement and evaluate. The findings are based on financial reports taken from all of construction companies listed in Surabaya Stock Exchange (SSX). The SSX has classified 6 firms in the construction sector. It has included both private and state owned firms. The research methodology adopted for this study includes data collection and analysis of firm annual reports and financial statements. There are some methods and techniques of financial ratio analysis in evaluating corporate performance of construction firms. Modified traditional ratios such as Liquidity, Leverage, Activity and Profitability ratios are adapted from Construction Financial Management Association (CFMA) to support different purposes of analysis. When evaluating ratios, the results are compared with other firms in the same sector of industry. The analysis reveals that the Indonesian firms in this study are financially sound, where profits and returns generated from construction works are still satisfactory. However, this performance can still be sustained if they are able to manage their maximum pace at which a company can grow revenue without depleting its financial resources.

KEYWORDS: Financial Management; Ratio Analysis; Strategic Management, Management of the firm; Indonesia.

1. INTRODUCTION

The Indonesian government established the National Construction Services Development Board (CSDB) in 1999, and began working to develop the industrial sector through industry-government partnerships. The government and CSDB hope to establish organizations that are needed by companies, engineers, and skilled workers with regard to human resource development, technological innovation, and capital cooperation. These activities are expected to ensure a level of capacity building that will allow Indonesia to compete in global economic structures. Since 2004, under the new regime of Susilo Bambang Yudhoyono, expanded efforts toward infrastructural and public housing development are expected to boost the construction industry and employment. The Government is pursuing public private partnership (PPP), which introduces private sector funds into infrastructure building in Indonesia.

Although the construction industry in Indonesia is relatively young, it has shown a rapid growth since the early 1970s. The construction industry contribution to the Indonesian GDP increased from 3.9% in 1973 to 7.9% in 1996. In the period of 1996 to 1999, construction works were sharply reduced due to the recent economic crisis, but went on the upswing from 1999 to 2005. The Bureau of Statistics (BPS) reveals that the latent construction market for 2005 was valued at about 45 Trillion Indonesian Rupiah (IDR), reflecting a growth rate of 6% over the previous year and this growth is set to continue.

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The construction establishments were up 13% over the last 5 years. Residential and non-residential building similarly fell in 1999 to a low of 3.9 trillion Rupiah from 7.7 trillion Rupiah of the previous year and steadily rose to 20.3 trillion Rupiah in 2005. Road and bridge activity fell in 1999 and began to show a continuous rise until 2005 to 12.4 trillion Rupiah (in Constant Real Prices 1993) representing 5 successive years of growth after the crisis in 1999. Other construction experienced the dip from 4.8 trillion Rupiah in 1999 to 5.6 trillion Rupiah in 2003 and then continuous growth till 6.1 trillion Rupiah in 2005. The stability in the economy, with lowering of short term interest rates to 15% today from 18% in 2003, and inflation easing from the yearly rate of 17.1% in 2005 to 6.6% in 2006, have led to a recent cyclical improvement trend in the level of construction business activities over the coming year.

However, small foreign-owned firms play a dominant role and control the Indonesian construction market. Construction Firms Statistics (LPJK, 2007) shows that the number of construction companies reached 126,384 in 2006 which consists of 99% small and medium enterprises. Many Indonesian construction firms are faced with a significant gap in capital funds and technology when compared with foreign-owned construction firms. Moreover, some of the local firms may not be able to survive and sustain their business during the recent economic crisis. Therefore, there is a strong need to evaluate how the Indonesian firms have managed their financial performance over the past few years.

2. FINANCIAL RATIO ANALYSIS

Ratio analysis is among the most popular and widely used tools in evaluating financial performance. Financial ratios generally compare various dimensions of performance among comparable units and within a single unit over time periods. As comparative tools, ratios are used to measure a firm's performance over time (trend analysis) and to compare it with that of its competitors or industry averages (comparative analysis). The figures used in calculating financial ratios primarily come from income statements and balance sheets prepared under generally acceptable accounting practice standards. Thus, financial ratio analysis is an extension of other financial statement analytical techniques. The four major financial ratio categories measure liquidity, profitability, leverage and efficiency.

In the construction context, various works have been developed to explore these techniques in evaluating the business strategy in the construction industry and there have been a very minimal amount of research related to the financial strategy as an integrated part of strategic management practice in construction industry. The study is an extension of a larger study that is an attempt to identify the areas of strategic issues for Indonesian construction firms and develop an appropriate strategic management process for the firms to formulate, implement and evaluate.

Some researchers developed their framework to show the financial stability of construction firms by adopting traditional ratios and Altman's Z score model i.e. the sum of the weighted ratios on five key balance sheet ratios e.g. Return on total assets, Sales to total assets, Equity to debt, Working capital to total assets, and Retained earnings to total assets (Altman, 1968). Among the most relevant research of financial ratio analysis in construction that followed the framework are those of Fadel, H (1977), Akintoye, A (1991), Langford, D (1993), Edum-Fotwe, F (1996), Pilateris (2003), Cheah (2004), Chan, J (2005), Yee, C (2006), Singh, D (2006), Ocal, M (2007). However, there are still some fundamental issues that are not covered yet such as how the financial ratio should be treated, and what is the specific financial ratio standard or condition applicable for the construction industry? In 1999, the Construction Financial Management Association (CFMA) introduced the industry benchmark in the United States which contains invaluable information for evaluating the construction firm's financial performance as well as certain aspects of operating performance. For the 18th consecutive year, CFMA has published its annual financial survey of construction industry practices. In the case of

assessing the financial performance of a construction firm, CFMA employs 19 financial ratios as follows:

Profitability ratios:
R.1 Return on Assets
R.2 Return on Equity
R.3 Time Interest Earned

Liquidity ratios:
R.4 Current Ratio
R.5 Quick Ratio
R.6 Days of Cash
R.7 Working Capital Turnover

Leverage ratios:
R.8 Debt to Equity
R.9 Revenue to Equity
R.10 Asset Turnover
R.11 Equity to SG&A Expense
R.12 Underbillings to Equity
R.13 Backlog to Equity

Efficiency Ratios:
R.14 Backlog to Working Capital
R.15 Months in Backlog
R.16 Days in Account Receivable
R.17 Days in Inventory
R.18 Days in Account Payable
R.19 Operating Cycle

The formulas that define the above ratios are listed in Appendix 1. However, In the CFMA's 2006 Annual Financial Study, Return on Assets (ROA) and Return on Equity (ROE) are calculated using net profit (loss) before income taxes. Studies conducted in prior years used net earnings (loss) after taxes to calculate ROA and ROE.

As a general rule, the higher the score in profitability and liquidity, and the lower score in leverage indicate the better the financial performance of the firm. Ellis (2006) suggests five indicators to determine 'Best in Class' status of financial health of a construction firm i.e. (1) Return on assets; (2) Return on equity; (3) Fixed asset ratio; (4) Debt to equity, and (5) Working capital turnover. In addition, McCall (2006) points out that working capital is the most important ratio for construction contractors which is a direct indicator of a contractor's short term financial strength and is used to help evaluate a contractor's ability to fund construction projects. All these have to be taken into account when evaluating the financial performance of a firm

3. METHODOLOGY

The research methodology adopted for this study includes data collection and analysis of the firm's annual report. These reports include the following financial statements: Consolidated of Balance Sheets, Consolidated Statements of Income, Consolidated Statements of Changes in Equity, and Consolidated Statements of Cash Flows. The Capital Market Supervisory Agency of Indonesia (2002) has recommended a guide for financial report/statement disclosure for public listed companies in the construction industry.

Specific financial ratio standards for the Indonesian construction industry have not been formally developed, and hence the ratios will be compared to values applied to the U.S. construction industry found in various references which are noted with each ratio. Modified traditional ratios such as Liquidity, Leverage, Activity and Profitability ratios are adapted from CFMA's Construction Industry Annual Financial Survey (Ellis, 2006) to support the different purposes of analysis. In evaluating ratios, the results are compared with other firms in the same market segment of industry, and comparable in terms of size. A sample of six construction companies listed on the Jakarta Stock Exchange (JSX) and Surabaya Stock Exchange (SSX) was selected in this empirical research. All of the selected firms have been involved in the Indonesian construction business over 30 years with total assets value over 1 Trillion Indonesian Rupiahs (IDR).

4. EVALUATING FINANCIAL RATIO

The analysis is carried out over a period of four consecutive years so that all aspects of recent financial performances are reflected in the following results of evaluation.

4.1 Revenue and profitability

Table 1 shows the changing trend on profitability ratios in average (mean). This ratio reflects the profit that a firm is making. Gross and Net Margins are indicators of how well the firm is generating profit relative to the level of revenue.

Table 1. Trend Analysis of Profitability Ratio

Financial Ratios – All Firms	2006	2005	2004	2003
Revenue (in trillion IDR)	14,8	13,1	10,9	8,7
Gross Profit Margin	11.3%	9.4%	8.6%	9.0%
Operating Profit Margin	6.7%	5.7%	4.8%	4.6%
Net Margin	4.2%	3.7%	3.6%	2.7%
Return on Asset	7.0%	6.7%	7.1%	5.7%
Return on Equity	28.6%	27.9%	28.8%	22.5%
Time Interest Earned	3.1	5.6	2.9	1.6

There has been an increase towards the firm's profitability in the last 4 years. On average, Indonesian construction firms are realizing revenue of IDR 14.8 trillion in 2006, or 69% higher compared to the revenue realization over 2003. The firm's major segment of revenue come from construction activities e.g. building, bridge and road, and port works that representing of 85% of total revenue in average. This increase of revenue resulted from the firm's marketing expansion that was run progressively since expanded efforts toward infrastructural development was boosted by the Indonesian government in early 2004.

The average gross, operating and net profit margin had continuously increased year by year. However net margin of 2004 and 2005 still remains the same due to the operating expense pressure that accompanies inflation escalation. The increased profitability affected the firm's composite of Return on Asset (ROA) and Return on Equity (ROE), which increased from 6.7% to 7.0% and 27.9% to 28.6% respectively. ROA (R1) measures how well management utilizes all the assets in the business in generating an operating efficiency of the firm, and ROE (R2) considers how that operating in generating return to shareholders. In terms of time interest earned (R3), the ratio significantly increased almost doubling from 2003 to 2006 financial year.

Walls (2003) states that an ROA or ROE of 15% is a very satisfactory return, despite very profitable firms in the US achieving very high value of 26% to 27%. In comparison, all construction firms in the US report an average ROA of 6.7% and ROE of 23.7% (Ellis, 2006). Judging from these figures, it is clear that Indonesian construction firms have delivered a good return to the shareholders.

4.2 Cash Flow and liquidity

Table 2 reveals the changing trend on liquidity ratios on average. Current ratio (R4) and Quick Ratio (R5) are commonly used as barometers of short-term liquidity and short-run solvency. Another short-term approach is the cash flow liquidity which considers cash flow from operating activities. Generally, a value between 1 and 2 is considered acceptable in most industries.

Table 2: Trend Analysis of Liquidity Ratio

Financial Ratios	2006	2005	2004	2003
Current Ratio	1.46	1.56	1.86	2.2
Quick Ratio	1.17	1.20	1.39	1.7
Days of Cash	32.06	22.99	30.86	42.8
Working Capital Turnover	6.97	5.78	4.80	7.5

The liquidity ratios have declined on average 33% more for the current ratio and 31% for quick ratio since 2003, but in contrast, day of cash, and working capital turnover was recovered. Indonesian firms turned over their working capital an average 5.8 to 6.9 in 2005 and 2006 respectively. In same period, the current and quick ratio averaged 1.3 and 1.2 for US construction companies. They reached 18 days of cash and returned 14.2 their working capital. The liquidity ratio analysis results indicate that Indonesian contractors have higher point in current and quick ratios, but lower point in working capital. The Indonesian firms did not use their working capital to generate sales as efficiently as the US companies.

4.3 Leverage

Table 3 indicates the changing trend on leverage ratios on average. Six ratios are evaluated i.e. Debt to Equity (R8), Revenue to Equity (R9), Asset Turnover (R10), Equity to SG&A Expense (R11), Underbillings to Equity (R12), and Backlog to Equity (R13). The debt to equity ratio is one of the most fundamental measures in corporate financial strength.

Table 3. Trend Analysis of Leverage Ratio

Financial Ratios	2006	2005	2004	2003
Debt to Equity	3.96	4.05	3.53	3.1
Revenue to Equity	6.46	6.77	6.81	7.0
Asset Turnover	1.23	1.34	1.52	1.6
Equity to SG&A Expense	5.21	5.25	5.38	5.0
Underbillings to Equity	139%	140%	129%	85%
Backlog to Equity	N/A	5.76	5.12	4.5

The debt to equity ratio indicates risk level of the firm's capital funds in terms of the relationship between debtors and investors. In this case the risk level increased 27% from 2003 to 2006 where a ratio of 3 to 1 or less is considered acceptable by most sureties. Underbillings to equity indicates the percentage of the construction firm's equity represented by work performed but not yet billed. A ratio in excess than 20% is considered unusual by most sureties.

Revenue to equity has remained steady at 7 points. The declining trend is shown in last three years for financial ratios of asset turnover, equity to SG&A expense, and underbillings to equity, but backlog to equity increased in 2005 compared with the previous year.

As noted by Ellis (2006), The US construction companies take slightly less financial risk to generate better financial performance. The company had an average Debt to Equity ratio of 2.5 or 30% lower than the Indonesian firm's average over the last four years.

4.4 Efficiency

Table 4 shows the changing trend on efficiency ratios on average.

Table 4. Trend Analysis of Efficiency Ratio

Financial Ratios	2006	2005	2004	2003
Backlog to Working Capital	N/A	4.52	3.25	3.8
Months in Backlog	N/A	9.64	10.65	10.6
Days in Account Receivable	79.34	67.61	54.83	51.6
Days in Inventory	19.16	20.47	23.73	19.9
Days in Account Payable	76.04	72.04	63.66	52.9
Operating Cycle	54.53	39.04	36.63	61.3

Backlog to working capital (R14) measures the relationship of work under contract to discounted working capital. Generally a ratio of 20 or less is considered acceptable. A higher ratio may indicate a need for an increase in permanent working capital. The average value of this ratio in the US is 10, while Indonesian firms have had a lower point of 4 on average.

Looking at the difference between days in Account Receivable (R16) and Account Payable (R18), a negative value means that the firm is receiving cash before it is paying it out. The US companies have had an average difference of 10 days between account receivable and payable. The analysis reveals that Indonesian firms required fewer days to convert their receivables into cash and had a good policy in managing their payable outstanding.

5. CONCLUSIONS

This financial evaluation shows that the Indonesian firms in this study are reasonably sound. Profits and Returns generated from construction works are still satisfactory. The increased profitability has affected the firm's composite of Return on Asset (ROA) and Return on Equity (ROE). Although they gained higher scores in profitability and liquidity, the companies bear higher risk of the firm's capital funds due to the leverage ratio reaching more than 3 times their equity. It is doubtful whether the profits can still be sustained unless Indonesian firms are able to manage their maximum pace at which a company can grow revenue without depleting its financial resources.

Since most of these ratios were reflected over a short period of four consecutive years, it is important for this company to analyse strategically the business performance over the longer term. The ratio analysis can be integrated into and be valuable part of strategic models such as sustainable growth rate (SGR)) and other internal or external factor analysis. The SGR is particularly valuable because it combines companies' operating elements into one comprehensive measure. Indeed this also enables comparisons to be made with foreign construction firms if they are to compete in global economic structures. This being the first published research of this type in Indonesia, a full study in greater breath and depth would be highly beneficial for this important sector of economy.

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APPENDIX 1

Defined Formulas of Financial Ratios

Item	Financial Ratio	Defined formula
R1	Return on Asset	=Net Profit Before Income Taxes / Total Assets
R2	Return on Equity	=Net Profit Before Income Taxes / Total Equity
R3	Time Interest Earned	=Net Profit Before Income Taxes / Interest Expense
R4	Current Ratio	=Current Assets /Current Liabilities
R5	Quick Ratio	=Cash + Marketable Securities + Net Receivables / Current Liabilities
R6	Days of Cash	=(Cash * 360 days) / Total Revenue
R7	Working Capital Turnover	= Total Revenue / (Current Assets - Current Liabilities)
R8	Debt to Equity	=Total Liabilities / Total Equity
R9	Revenue to Equity	=Total Revenue / Total Equity
R10	Asset Turnover	=Total Revenue / Total Assets
R11	Equity to SG&A Expense	= Total Equity / Total Selling, General and Admin Expenses
R12	Underbillings to Equity	=(Unbilled work + Costs and recognized earnings in excess) /Total Equity
R13	Backlog to Equity	=Backlog / Total Equity
R14	Backlog to Working Capital	=Backlog / Working Capital
R15	Months in Backlog	=Backlog / (Total Revenue /12)
R16	Days in Account Receivable	=((Contract Receivables + Other Receivables + Allowance for Doubtful Accounts)) * 360 days) / Total Revenue
R17	Days in Inventory	=(Inventories * 360 days) / Cost Of Goods Sold
R18	Days in Account Payable	=((Payables - Retainages) * 360 days) / Cost Of Goods Sold
R19	Operating Cycle	=Days in Cash + Days In Accounts Receiveable + Days in Inventory - Days in Accounts Payable